

purities of Metallic Bismuth," and at its close received a vote of thanks.

Meeting adjourned.

JNO. HENDERSON,  
Cor. Secretary.

## Correspondence.

### Poisonous Aniline Dyes.

To the Editor of the Canadian Pharmaceutical Journal.

SIR,—I perceive you have an article in the JOURNAL for February, headed "Poisonous Aniline Dyes," in which Mr. Crooks states that they have, for several years, ceased to use arsenic in aniline colors. The following extracts from Reimann's "Handbook of Anilines" (1868), proves that arsenic is still used. At page 38, it says that "none of the methods we have hitherto spoken of are now employed in practice, having been superseded by a method that especially excels in the cheapness of the materials used in the reactions. The process of preparing magenta (fuchsine), by means of nitrate of mercury, is, however, still used in some cases, but its employment is very limited, and I know only two manufactories where it is practically effected. Magenta is now only made by treating aniline with arsenic acid ( $\text{As}_2\text{O}_5$ )."

Again, in the Appendix (which contains the report on the coloring matters derived from coal tar, shown at the French Exhibition of 1867), at page 114, we find it stated that of all the numerous agents, which at the outset of the aniline color industry, were recommended for the commercial production of rosaniline, arsenic acid, alone, has maintained its position, and is now almost exclusively used.

I am, yours, &c.,  
R. W. PUDCOMBE.

LONDON, ONT., March 4, 1869.

NOTE.—The statement of Reimann, quoted by our correspondent, is confirmed by J. A. Wanklyn, Professor of Chemistry in the London Institution, in a recent communication which appeared in the *British Medical Journal*. We append that portion relating to magenta, as it will, no doubt, prove of interest to our readers.—Ed.]

Magenta, the well-known red dye—which is, moreover, the basis of beautiful violets and blues, that are prepared from it by well-known processes—is of arsenical origin. All the magenta made at the present time, and, with a very insignificant exception, all the magenta which has ever been manufactured, is a product of the action of arsenic acid on commercial aniline. At first, and, indeed, even when the manufacture had become largely developed, the dye was sent into the market in a highly arsenical condition. In 1863, I examined beautiful crystals of magenta, samples of the dye produced by a very large continental firm, and found them to contain something like 25 per cent. of arsenic acid. Many tons of solid dye, such as that which I analysed, found their way into the

market. At the present time, it is unlikely that much magenta of this quality is manufactured; but it is in the highest degree improbable that any magenta is quite free from arsenic, and more than probable that some of the varieties which are manufactured contain a very considerable quantity. In fine, we are justified in regarding fabrics which are dyed with magenta as having been more or less impregnated with arsenic. On the other hand, it will be urged that there can be no absorption of arsenic from a fabric dyed with magenta, inasmuch as the arsenic is chemically combined with the dye-stuff, which, with the fibre coloured by it, constitutes an insoluble compound, and is, therefore, out of the reach of the process of absorption. Unfortunately, however, magenta fades, and is fugitive; it is, in fact, one of the least permanent of all the coal-tar colours; and, as the organic part of the dye decays, the arsenic will be set at liberty, and presented in a form most suitable for absorption. In addition to the possibility of arsenical poisoning from the employment of coal-tar colours, there are other varieties of poisoning to be apprehended. The organic part of these new dyes is unquestionably more or less poisonous. One of the yellow dyes, in particular, is said to be an irritant of a most formidable character. On this subject, and with the object of opening the eyes of the public, I cannot, perhaps, do better than quote what has been said by a manufacturer when reproached with the poisonous nature of his dyes: "They are not more poisonous than arsenic." As a set-off against the fact that the dyes are powerfully poisonous, must be placed the equally certain fact that the quantity of dye-stuff taken up by a shirt is very small. Whilst deprecating any degree of public excitement on this subject, I would urge the necessity of having the whole subject investigated. Possibly the result of investigation may be, that the risk of sock and shirt poisoning is small—something like the risk of railway traveling; possibly, however, the reverse; and possibly we may have to abandon the use of coal-tar dyes for the colouring of such articles of clothing as are to be worn in immediate contact with the skin.

### Physical and Chemical Properties of Carbolic Acid.

We extract the following from Dr. Pinkham's paper on "Carbolic Acid as a Poison," (*Philadelphia Med. & Surg. Reporter*):—

Pure carbolic acid ( $\text{HC}_6\text{H}_5\text{O}$ ) is found in commerce in two forms, a glacial or crystalline and a liquid form. Glacial carbolic acid is a colourless solid, of low specific gravity, consisting of broken acicular crystals, which melt at a temperature of  $95^\circ\text{F}$ ., and become liquid on the addition of a small quantity of water. Liquid carbolic acid has a specific gravity of 1.065, is easily volatilized, and boils at a temperature of  $35^\circ\text{F}$ . When pure, it is colourless, but as usually seen, its colour is a light pinkish-brown. Its odour resembles that of creasote, but is less penetrating and disagreeable. Its taste is hot and pungent. When brought in contact with the tissues of the body, it acts as a caustic, producing a white slough. Its vapour also powerfully attacks the mucous membrane of the eyes, nose and lips.

Carbolic acid coagulates albumen, gluten, and caseine. It is called an acid, but it be-

longs more properly among the alcohols. It does not redden blue litmus paper, and the compounds it forms with bases, even those the most powerful, are unstable. With sulphuric acid it unites, forming a colligated acid. It forms with water a crystallizable hydrate, soluble in water and alcohol. Its compound with potassa, potassa carbolato, is a colourless crystallizable substance, easily decomposed by heat and the acids, which might possibly prove a valuable substitute for potassic hydrate as a caustic.

Carbolic acid dissolves in all proportions in alcohol, ether, glycerine, the fixed oils, and strong acetic acid. In regard to its behaviour with water, authorities differ. My own observations lead me to the following conclusions:—

1. With twenty times its weight of water (the minimum) carbolic acid forms a solution, or, more properly speaking, a permanent emulsion.

2. With twelve times its weight of water, it forms, on agitation, a temporary emulsion, which, for all practical purposes, is equivalent to a solution.

The taste of the aqueous preparations and of dilute solutions in certain other menstrua, is warm, and not unpleasant while the odour is feeble. The impure acid, sold chiefly for disinfecting purposes, is of various degrees of strength and purity. Its colour is dark, and its odour much more marked than that of the pure acid. It may be well, at this point, to state that several preparations of different strength have been sold in the market under the name of "saturated solution of carbolic acid." To avoid mistakes, it would be well for physicians, when prescribing the drug for medicinal purposes, to write for the pure acid, dictating the menstruum if a solution be required. Carbolic acid is known by several different names, as phenol—more appropriate by far than the one it now generally bears—phenylic alcohol, phenylic acid, phenic acid, hydrate of phenyl, etc. It occurs in coal tar, associated with creasote, and the two have often been mistaken, the one for the other. Cresylic acid, a substance also found in coal tar, resembles carbolic acid in properties, and has been considered by some identical with it. Williamson regards it as a distinct compound, and gives its formula as  $\text{H}^7\text{C}$ ,  $\text{H}^7\text{O}$ .

Carbolic acid may be recognised by its odour, by its action on the animal tissues, by its behaviour with water, and by the following chemical test:

A splinter of deal, dipped first into the acid, and then into strong nitric or hydrochloric acid, will become blue on drying.

### Nuremberg Violet.

A new color, recently discovered by Leykauf, is prepared by fusing pulverized black oxide of manganese, in an enamelled iron vessel, with phosphoric acid, and boiling the frit, after it is cold, with water and ammonia; then filter and evaporate the filtrate to dryness, and heat the residue to fusion. The result of the second melting is again to be well washed, and the remaining violet powder dried. If, instead of manganese, an iron compound is employed, a blue color is obtained, and thus, by mixing a little iron with the manganese, a violet color results, having a more or less blue shade. The color is said to be fast, and of value in cotton printing, wall-paper, and other purposes.—*Journal of Applied Chemistry*.